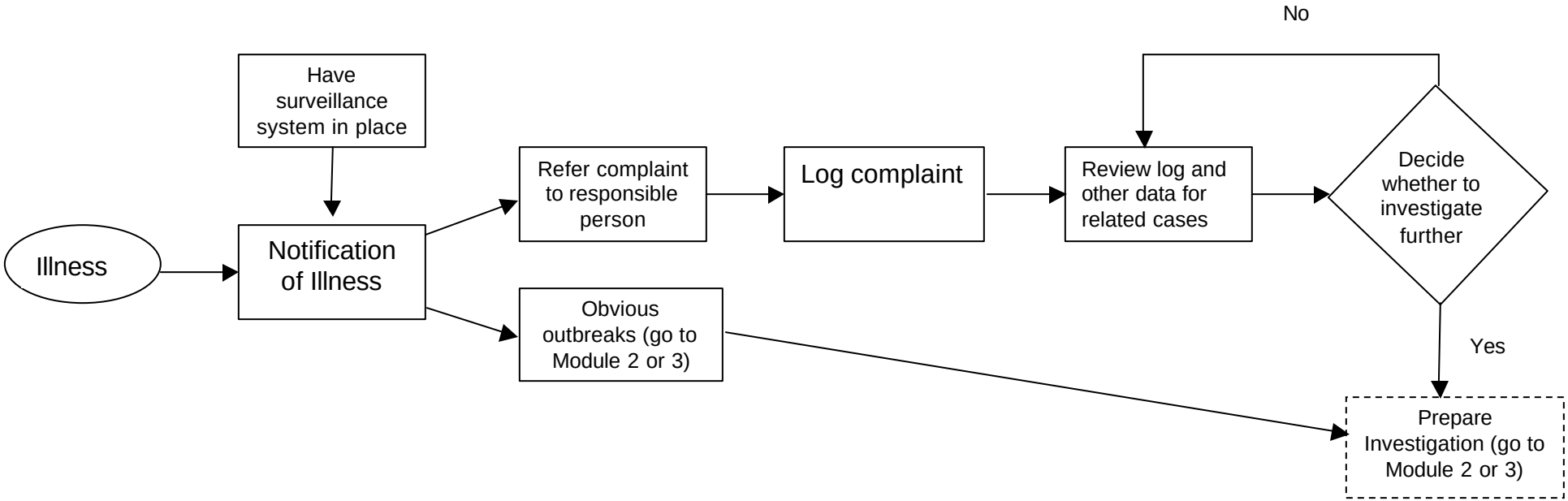
MODULE 1: PASSIVE SURVEILLANCE *



*** Both laboratory confirmed cases and unconfirmed reports (illness complaints)**

I. Task List

A. Illness

No tasks under this heading

B. Notification of Illness

- Use approved forms to document initial reports and gather appropriate information.
- Each section on the form has a purpose.
- For obvious outbreaks, record key information on line list and go to Module 2 or 3.
- Encourage symptomatic clients to submit appropriate clinical specimens.
- Notify state agencies and other local jurisdictions.

C. Obvious Outbreaks

- Document all outbreak reports in a foodborne illness complaint log (or equivalent electronic data storage system).
- Promptly initiate appropriate steps outlined Module 2 or 3.
- Identify the information that will need to be gathered during the investigation.
- Consult with MDCH and/or MDA as needed.

D. Refer To Responsible Person(s) or Agency

- Refer complaints to the agency with regulatory authority over that facility for collaboration and follow up.
- Follow-up complaints involving facilities under your jurisdiction.
- Notify communicable disease staff of outbreaks and reported incidents involving laboratory-confirmed infections.

- Clearly document referred incidents and what follow up actions were taken.

E. Log Complaint

- Assign a unique sequential number to each complaint or case investigation.
- Instruct staff on how to systematically enter data into log.
- Transfer key information from input forms to log.
- Establish a retention schedule for surveillance records.

F. Review Log and Other Data for Related Cases

- Establish a written procedure for reviewing surveillance data.
- Check baseline data to determine expected levels of health events.

G. Decide Whether to Investigate Further

- Assemble team.
- Review the foodborne outbreak definitions.
- Review surveillance information to identify what is known and what pieces of information are missing.
- Review published literature about pathogen (known or suspected) involved.

II. Notes

A. Review of Definitions and Key Terms

Family Complaint: Incidents of illness involving related persons (same household) who report symptoms compatible with foodborne illness.

Note: Incidents involving coworkers with extensive person-to-person contact may be included in this category.

Foodborne Illness Alert: A single reported case of alleged foodborne illness.

Foodborne Illness Outbreak:

Regulatory Definition – Michigan Food Law, P.A. 92 of 2000, Section 3103 defines a foodborne illness outbreak as an incident where:

1) two or more persons, not of the same household, have ingested a common food and have a similar disease, similar symptoms, or excrete the same pathogens, and there is a time, place, or person association between these persons,

2) there is a single case of suspected botulism, mushroom poisoning, paralytic shellfish poisoning, or other rare disease; or

3) there is a case of a disease or poisoning that can be definitely related to ingestion of food.

Note: Investigation of these incidents is always required.

General Definition - CDC and IAMFES, Procedures to Investigate Foodborne Illness, p. 17

"An outbreak is an incident in which two or more persons have the same disease, have similar clinical features, or have the same pathogen, thus meeting the case definition, and there is a time, place, or person association among these persons."

Local health departments have authority to investigate outbreaks involving persons in the same household or coworkers. These decisions are typically made on a case-by-case basis.

Review: A single case of the following warrants further investigating:

- Botulism
- Chemical poisoning
- Mushroom poisoning
- Ciguatera or paralytic shellfish poisoning
- Other rare conditions likely to be foodborne (e.g., *Vibrio vulnificus*)

Isolated Consumer Complaint (ICC): Incidents of alleged adulteration of food, or a complaint of poor food quality (e.g., hair found in potato salad).

Surveillance is the mechanism public health agencies use to monitor the health of their communities. Its purpose is to provide a factual basis from which agencies can appropriately:

1) Set priorities,
2) Plan programs,
3) Take actions to promote and protect the public's health.

Passive surveillance refers to information provided to the health agency without an initiating action by the agency. Local health departments routinely rely on passive methods for foodborne illness surveillance. Examples include:

1) Requiring routine reporting of certain diseases and conditions by physicians and laboratories, and
2) Accepting reports of alleged foodborne illnesses from concerned citizens.

B. Have Surveillance System In Place

Reasons:

1) Early identification of potential cases and referral for medical care
2) Identification and appropriate follow up of cases and contacts in high-risk occupations (e.g., food handler, child-care provider)
3) Correction of improper food handling practices
4) Removal of contaminated products from the food supply

C. Background Information

1) The primary objective of passive surveillance is to prevent further illnesses, not just to collect statistics. Only after thorough evaluation can it be determined if a report is an isolated case or the "tip of an iceberg".

2) Because foodborne illness symptoms are nonspecific, many complaints of alleged foodborne illness are misidentified. Information must be systematically gathered to assess each case.

3) Passive surveillance is a core function of local health departments

    a. Environmental Health Minimum Program Requirements, Legal Authorities and Requirements for more information.

    b. Communicable Disease requirements – see Appendix 2

4) Passive surveillance systems can significantly increase the impact of LHD resources by capitalizing on information from outside agencies and individuals.

Example 1: Report of Unconfirmed Illnesses

A woman from the community calls to report that 4 members of her family became ill last night, 6–12 hours after eating a catered meal at a school event. She has talked to three families in her neighborhood that attended the event and they also had family members who experienced acute vomiting and diarrhea last night. She wonders if anyone has reported the problem to the LHD.

Example 2: Report of Laboratory Confirmed Illness

A public health nurse receives a report from a microbiologist at the local hospital laboratory. They have just confirmed a third case of *E. coli* O157:H7 this week. The nurse checks her surveillance records and notes that the expected number of cases for the county for the current month is two and promptly initiates an investigation of all three cases.

5) Participants include:

   - health care providers,
   - emergency responders,
   - laboratories,
   - and others.

6) While health-care providers and laboratories are required to report certain diseases and conditions, sharing periodic reminders and updates can promote participation in passive surveillance systems.

7) Foodborne illness surveillance is challenging because the typical signs and symptoms (e.g., nausea, fever, vomiting, and diarrhea) can also be caused by agents that can be transmitted by other means.

> **Example 3:**
>
> *Salmonella* spp. infections can be transmitted by several mechanisms including consumption of contaminated foods, person-to-person contact or by contact with infected animals.

8) Efficient interviewing, and review of scientific information regarding foodborne agents, can help determine if an illness may have been foodborne.

   - Foodborne illnesses are frequently attributed to other sources (e.g., “stomach flu”)
   - Enteric illnesses are often blamed on consumption of the meal that immediately preceded onset of symptoms (last meal bias).

Example 4:

A report is received by the LHD of an individual with a laboratory confirmed *Shigella sonnei* infection.

The client is reported to have symptoms compatible with a lower gastrointestinal tract infection (watery diarrhea). The client attributes the illness to consumption of a bad tasting hamburger eaten 2 hours before his symptoms began.

The incubation period associated with *Shigella* spp. infections can range from ½ - 7 days. The meal consumed 2 hours prior to illness is unlikely to be the source of illness. All potential routes of direct or indirect fecal-oral transmission of shigella need to be evaluated including the 72-hour meal consumption history and identification of all potential water and person-to-person transmission sources.

III. Task List Related Information

A. Illness

No tasks under this heading

B. Notification of Illness

- Use approved forms to document initial reports and gather appropriate information.
- Each section on the form has a purpose. Make sure staff are trained as to how and why information is being collected.
  - Routine laboratory confirmed infections – Gastrointestinal Illness Case Investigation (DCH-0622 form)
    - Currently used by public health nurses
  - Routine reports of unconfirmed illness (agent not laboratory confirmed) - IAMFES Forms C1 and C2
    - Currently used by environmental health
  - Food related complaints – IAMFES Form A. Use reverse side to record additional information if needed.
- For obvious outbreaks - record key information on line list and go to Module 2 or 3.
  - Use of IAMFES Form B is recommended
  - See C. Obvious Outbreaks and Module 2 or 3 for more information
- Encourage symptomatic clients to submit clinical specimens appropriate for their suspected condition.
  - Notify communicable disease section staff if the individual states he/she submitted a clinical specimen. Helpful information to include: the complainant's name, physician, emergency room, phone number.
- Notify state agencies and other local jurisdictions.

- LHDs are required to investigate and report laboratory confirmed infections of reportable conditions per the MDCH Rule R325.171 et seq.
  - Report confirmed enteric illness to MDCH within one week.
  - Reported via LHDSURV, fax or mail.
- MDA should be notified within 24 hours of reports of unconfirmed illness or food-related complaints.
  - Act 92, P.A. 2000 Section 3129-3131 and Act 368, P.A. 1978, Section 2433.
- Timely notification of state agencies strengthens statewide surveillance efforts and increases the probability of detecting foodborne illness outbreaks involving multiple jurisdictions.

Example 5:

During June 1997, communicable disease staff in several Michigan counties independently identified a slight increase in the number of laboratory confirmed *E. coli* 0157:H7 cases. MDA and MDCH staff were notified. Case histories indicated that many of the affected individuals were vegetarians. Based on information provided by local health departments, PFGE testing was done on the isolates from individuals living in several different counties. Results indicated that the isolates were genetically indistinguishable. A subsequent epidemiologic investigation documented the first identified outbreak of *E. coli* 0157:H7 infections associated with alfalfa sprout consumption.

C. Obvious Outbreaks

- Document all outbreak reports in a foodborne illness complaint log (or equivalent electronic data storage system) for disease trend monitoring.
  - Incidents not meeting the regulatory definition of a foodborne illness outbreak may still warrant an investigation and follow up.

Example 6:

A concerned father calls to report he, his wife, and four of their six children became ill with violent vomiting and diarrhea six to ten hours after consuming a meal at a family reunion in a neighboring county. He estimates that approximately 150 persons from all over the state were at the reunion. Although all affected persons are from the same household, this situation would require some investigating because others may be sick.

- Promptly initiate appropriate steps outlined in Module 2 or 3:
  - Local health departments are responsible for conducting complete outbreak investigations
    - Regardless of who regulates the implicated site of food preparation or service.
    - Coordinate environmental assessment portion of the investigation with the agency regulating the facility (See Environmental Assessment portion of Module 3:).
  - Review Module 2: Outbreak Determination as some sections apply to outbreak investigations (example: active case finding)
- Identify the information that will need to be gathered during the investigation
  - Begin with the end in mind.
  - Local health departments are required to submit a final report to MDA of their findings.
  - Systematically collect information needed for the final report and CDC form 52.13.
  - Review of the recommended format for the final report and CDC form 52.13, Investigation of a Foodborne Outbreak see Module 4, Write Final Report for more information.
- Consult with MDCH and/or MDA as needed
  - When in doubt, state officials are available 24 hours a day for consultation.
  - State agencies track foodborne illnesses statewide and may be aware of events in other parts of the state that could effect your investigation

D. Refer to Responsible Persons or Agency

- ❑ Refer complaints to the agency with regulatory authority over that facility for follow up.
    - Food service facilities – generally the environmental health division of the local health department.
    - Food processors, convenience stores, retail grocers – generally MDA.
    - Collaborate on outbreaks involving multiple jurisdictions.
    - Maintain communication to ensure timely follow up on inspections and environmental assessments.
- ❑ Follow-up complaints involving facilities under your jurisdiction.
    - A coordinated process of referring and tracking case reports will prevent unnecessary delays in intervention.
    - Professional judgement is required to decide what level of investigation is warranted. Factors to consider include:
        - Is this an isolated incident with no other supporting evidence of illness caused by food?
        - Biological plausibility that the reported illness was due to foodborne transmission of biological, chemical, or physical agents?
- ❑ Notify communicable disease staff of outbreaks and reported incidents involving laboratory confirmed infections.
    - Common examples: Hepatitis A, *E. coli* O157:H7, and *Salmonella* spp.
    - Allow simultaneous evaluation of the food facility and follow up with the patient(s).
- ❑ Clearly document referred incidents and what follow up actions were taken.

E. Log Complaint

- ❑ Assign a unique sequential number to each complaint or case investigation.
- ❑ Instruct staff on how to systematically enter data into log or electronic database.
    - Results in more complete and reliable data
- ❑ Transfer key information from input forms to log.
    - See C, Notification of Illness, for recommended forms.
    - Keep the log format simple for monitoring trends. A well-tested log format has already been developed by IAMFES (Form B).
- ❑ Establish a retention schedule for surveillance records.
    - Inpatient and outpatient records must be retained in their original form for at least 5 years.

F. Review Log and Other Data for Related Cases

- ❑ Establish a written procedure for reviewing surveillance data
    - Who: Assign review responsibility to a specific person.
        - Be sure to have a backup person.
    - What: Identify what information should be routinely reviewed.
        - Streamline passive surveillance procedures ensure information is collected and reviewed as accurately and efficiently as possible.
        - Information contained in initial reports and complaints are subjective and may be inaccurate:
            - Potential to blame the last meal eaten before the onset of symptoms (“last meal bias”), and
            - Illnesses caused by contaminated ingredients may go undetected because food histories record complete foods, not specific ingredients.

Example 7:

Persons affected in a *Salmonella* sp. sero. Enteritidis outbreak may report eating a variety of dishes containing potentially undercooked eggs (e.g., french toast, home made ice cream, lasagna, eggs over easy, scrambled eggs). It would be difficult to pinpoint which item caused the illness. Further meal investigation is needed.

- Where: location of records and log.
- When: identify the minimum frequency for review.
  - Weekly review is recommended
  - Delayed evaluations means lost opportunities to intervene and prevent additional cases.
- How: identify how to document completion of each review.
  - Example: initialing and dating the log

- Check baseline data to determine expected levels of health events
  - An outbreak or an epidemic is the occurrence of more cases of disease than expected over a particular period of time in:
    - a given area, or
    - among a specific group of people.
  - Select meaningful time frames for comparisons: monthly, year to date, median, or cumulative.
  - Decision making is easier when you know disease trends in:
    - Your community,
    - Neighboring jurisdictions,
    - Michigan,
    - and, the nation.

- New laboratory technologies that identify genetically identical isolates are powerful investigative tools (e.g., PULSENET).

- Review information for all food-related events.

  - Complaints of unconfirmed illnesses

  - Laboratory confirmed enteric illnesses

- Examples of reasons for unexplained increases in illness reports:

  - Cases may not be related (i.e. different routes of transmission).

  - Unique unidentified common-source or person-to-person exposure.

  - The incubation period may extend beyond the standard 72-hour meal history (e.g. *Salmonella typhi*, Hepatitis A, *Giardia lamblia*, *Cryptosporidium parvum*, *Campylobacter jejuni*, *Listeria monocytogenes*).

Obtain or confirm a diagnosis in these situations before conducting extensive interviews beyond the standard 72-hour meal history.

G. Decide Whether to Investigate Further

- ❑ Assemble team.

  - Identify team leader(s).

  - Review roles and responsibilities.

  - Identify who should be notified when an expanded investigation is being initiated.

- ❑ Review the foodborne outbreak definitions.

- ❑ Review surveillance information to identify what is known and what pieces of information are missing.

  - Take into consideration the strengths and weaknesses of the data including:

    - Illnesses – example: suspect vs. confirmed

- Exposures – certainty of food consumption history

- Potential public health impact (number of people potentially exposed, possibility of ongoing exposure)

  - Known modes of transmission – single vs. multiple

  - Other corroborating evidence

- Review published literature about pathogen (known or suspected) involved.

  - Several excellent texts exist that summarize key information about the known foodborne pathogens including, incubation period, signs and symptoms of infected persons, and foods frequently implicated in the past as vehicles for that agent.